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# Rural Household Savings in the Republic of Korea, 1962-76

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# Rural Household Savings in the Republic of Korea, 1962-76

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## I. Introduction

The literature on savings-consumption behavior in low income countries (LICs) has been growing, but only a handful of studies have investigated rural savings behavior at the farm-household level.[1] A few of these studies suggest that relatively high savings propensities exist in some rural areas and that rural savings behavior is very similar to that of urban savers. The evidence from recently completed studies of Taiwanese rural savings behavior and similar work in Japan support these hypotheses.

The Republic of South Korea provides an excellent case for further exploring rural household savings. During the three consecutive five-year development plans covering the period 1962-1976, Korea experienced impressive economic growth. Per capita GNP increased more than eight-fold from 1962 to 1976. During the same period, value of output from Korean agriculture grew at a rate of 4 percent per year. Although lagging substantially behind the industrial sector, Korean agriculture also increased sharply its own capital base. Significant increases have occurred in the use of mechanization, new crop varieties, fertilizer, insecticides, and formal credit. The recent "New Community Movement," a self-help program aimed at promoting rural income at the village level, has changed substantially rural areas. During the last decade and a half, Korean farmers have enjoyed large increases in incomes; the average income of farm

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1 For examples, see Kelly and Williamson, Mizoguchi and Ong *et al.*

households more than doubled in real terms between 1962 and 1976. During the 70's, there were some years where average rural household income even surpassed the average income of wage and salary earning household in urban areas.

The mobilization of voluntary domestic savings is becoming an important issue in the Republic of Korea. During the 1950s and 1960s development within the country depended heavily on foreign capital and low wage rates. This has changed dramatically during the 1970s, however. Currently, heavy emphasis is being placed on mobilizing domestic savings, especially from households. This is aimed at realizing financial autarky and helping to ease inflation by curbing consumer demand. It is unclear, nevertheless, how much the rural households can contribute to these financial savings.

The main objective of this study is to investigate the factors which have affected savings-consumption decisions in rural Korea for some selected years during 1962-1976. This will include documenting changes in farm family income, assets, savings, and consumption during the period 1962-1976. Following this, various policy implications regarding mobilization of rural surpluses are discussed.

## II. Recent Changes in Rural Areas

As can be expected when rapid economic growth occurs, the ratio of farm population to total population declined steadily in Korea from 1962 to 1976. The absolute numbers of people living on farms also declined. In 1962, 58 percent of the total population lived on farms. In 1976 this dropped to only 36 percent. There has also been a decline in the absolute as well as relative number of farm households. In 1962, 54 percent of the Korean households were rural. By 1976 this decreased to about one-third. The average family size among rural households also decreased significantly from 1962 to 1976. In 1962 the average family size among a representative sample of farm households was 6.32 people. In 1976 it was only 5.54. Decreases can also be noted in the number of farm workers and non-farm workers living in the household. The average number of working adults and children also decreased, but the average number of old people in the farm households increased.[2]

2 *Information in this paragraph was drawn from Economic Planning Board, Major Statistics of Korean Economy* (Seoul, Korea: Economic Planning Board 1976) and Ministry of *Agricultural and Fisheries, Reports on the Results of the Farm Household Economy Survey* (Seoul, Korea: Ministry of Agriculture and Fisheries, various years.

## Table 1

CONSUMPTION PATTERNS OF KOREAN FARM HOUSEHOLD SURVEY FAMILIES, 1962-76

| | Average[1] / Household Consumption | Food | Housing | Fuel & Light | Cloth-ing | Edu-cation | Medi-cal | Enter-tainment & Cermonies | Other[2] / |
|---|---|---|---|---|---|---|---|---|---|
| | 1976 (1,000 won) | % | | | | | | | |
| 1962 | 384 | 55.9 | 3.4 | 9.0 | 7.8 | 3.6 | 2.7 | 11.1 | 5.6 |
| 1963 | 450 | 60.3 | 3.5 | 9.2 | 6.5 | 3.4 | 2.4 | 11.0 | 3.7 |
| 1964 | 440 | 59.3 | 3.2 | 7.4 | 7.0 | 3.7 | 2.6 | 12.4 | 4.4 |
| 1965 | 397 | 53.1 | 3.8 | 7.8 | 8.0 | 4.5 | 3.0 | 14.7 | 5.2 |
| 1966 | 396 | 50.2 | 4.0 | 8.2 | 8.7 | 5.8 | 3.3 | 14.5 | 5.3 |
| 1967 | 435 | 49.1 | 3.9 | 8.0 | 9.0 | 6.2 | 3.5 | 14.6 | 5.7 |
| 1968 | 449 | 47.4 | 4.9 | 8.1 | 9.0 | 6.8 | 3.6 | 14.4 | 5.9 |
| 1969 | 500 | 46.4 | 4.3 | 8.1 | 9.0 | 6.7 | 3.3 | 16.7 | 5.5 |
| 1970 | 559 | 45.9 | 4.2 | 7.9 | 8.4 | 6.8 | 3.4 | 16.4 | 7.0 |
| 1971 | 605 | 47.4 | 4.2 | 8.0 | 7.6 | 7.5 | 3.2 | 15.9 | 6.3 |
| 1972 | 682 | 48.2 | 5.7 | 6.7 | 7.3 | 6.6 | 2.9 | 16.7 | 5.9 |
| 1973 | 694 | 47.3 | 6.6 | 6.6 | 7.4 | 7.2 | 3.4 | 14.9 | 6.5 |
| 1974 | 620 | 48.4 | 7.5 | 7.2 | 7.1 | 6.4 | 3.3 | 12.9 | 7.2 |
| 1975 | 697 | 47.3 | 7.0 | 6.3 | 6.9 | 6.2 | 3.7 | 15.9 | 6.7 |
| 1976 | 759 | 45.7 | 7.6 | 6.2 | 7.2 | 7.8 | 3.6 | 15.1 | 6.8 |

1/ Deflated by the wholesale price index of consumer goods for Seoul.

2/ Includes sanitation, beauty aids, communication and recreation expenses.

*Source* Ministry of Agriculture and Fisheries (MAF). *Report on the Results of the Farm Household Economy Survey* (Seoul, Korea: MAF, various issues 1965-1977).

As can be noted in Table 1, the average household's living expenses also have changed substantially over time. In 1976 prices, the average rural household increased consumption expenditures by more than 190 percent from 1962 to 1976. As might be expected, food expenses were the largest component of consumption in all years, occupying about 56 percent of the total consumption budget in 1962 and 46 percent in 1976. The downward trend in proportion of food expenses was offset by increasing percentages spent on housing, education, and entertainment expenses.

A rise in the rural standard of living has been directly associated with substantial increases in household income (Table 2). Using the wholesale price index of consumer goods, the average disposable income of farm households increased by about 150 percent in real terms from 1962 to 1976. Disposable income per capita increased even faster because of the reduction in average household size. These income increases affected consumption expenditures and savings propensities. The ratio of farm household savings to farm household disposable income - the average propensity to save per household - increased very sharply, especially after 1970. In the mid-1970's, rural households were saving approximately one-third of their incomes (Table 2).

The make up of assets in survey households over the past couple of decade is shown in Table 3. As can be noted, in real terms total liabilities of the average household generally increased through the 1960s, but then decreased to roughly the level of the early 1960s. At the same time the value of fixed assets, mainly land, held by the average family increased almost three times. The real value of total liquid assets went up more than two and a half times from 1962 to 1976. It can also be noted in Table 3 that the real value of cash and quasi-cash held by the average rural household went up more than seven-fold. The percentage of these highly liquid assets held on deposit went from only 5 percent in 1962 to about 20 percent in the mid-1970s.

## III. Description of Data Used

The data used in this study were drawn from the Farm Household Economy Survey, which is conducted annually by the Minstry of Agriculture and Fisheries. Part of the information from these Surveys on farm household income, consumption and savings is presented in Tables 1, 2 and 3. The Survey was initiated in 1962

## Table 2

### INCOME, CONSUMPTION AND SAVINGS OF KOREAN FARM ECONOMY SURVEY FAMILIES, AVERAGE PER HOUSEHOLD, 1962-76

| | Net Farm Income (1) | Net Non-Farm Income (2) | Total Net Household Income (3) = (1) + (2) | Household[1/] Disposable Income (4) | Household Consumption (5) | Household Savings (6) = (4) - (5) | Savings Ratio (7) = (6)/(4) | Non-Farm Income Ratio (8) = (2)/(3) | Wholesale Price Index Consum. Goods 1976 100 (9) |
|---|---|---|---|---|---|---|---|---|---|
| | 1,000 1976 won | | | | | | Ratios | | |
| 1962 | 373 | 95 | 468 | 455 | 384 | 71 | .16 | .20 | 14.5 |
| 1963 | 435 | 94 | 529 | 515 | 450 | 63 | .12 | .18 | 17.6 |
| 1964 | 441 | 94 | 535 | 521 | 440 | 81 | .16 | .18 | 23.5 |
| 1965 | 343 | 90 | 433 | 420 | 397 | 23 | .06 | .21 | 25.9 |
| 1966 | 360 | 102 | 462 | 447 | 396 | 51 | .11 | .22 | 28.2 |
| 1967 | 388 | 110 | 498 | 487 | 435 | 52 | .11 | .22 | 30.0 |
| 1968 | 423 | 129 | 552 | 543 | 449 | 94 | .17 | .23 | 32.4 |
| 1969 | 483 | 147 | 630 | 616 | 500 | 116 | .19 | .23 | 34.6 |
| 1970 | 513 | 164 | 677 | 668 | 559 | 109 | .16 | .24 | 37.8 |
| 1971 | 712 | 157 | 869 | 863 | 605 | 258 | .30 | .18 | 41.0 |
| 1972 | 757 | 162 | 919 | 914 | 682 | 232 | .26 | .18 | 46.7 |
| 1973 | 781 | 180 | 961 | 955 | 694 | 261 | .27 | .19 | 50.0 |
| 1974 | 762 | 187 | 949 | 945 | 620 | 325 | .35 | .20 | 71.1 |
| 1975 | 796 | 176 | 972 | 964 | 697 | 267 | .28 | .18 | 89.8 |
| 1976 | 921 | 235 | 1156 | 1144 | 759 | 385 | .34 | .20 | 100.0 |

1/ Household disposable income is defined as total net household income less taxes and interest payment plus depreciation.

*Source*. Ministry of Agriculture and Fisheries (MAF), *Report on the Results of the Farm Household Economy Survey* (Seoul, Korea: MAF, various issues 1965-1977).

Table 3

LIABILITIES AND ASSETS OF KOREAN FARM HOUSEHOLD ECONOMY SURVEY FAMILIES, AVERAGE PER HOUSEHOLD IN 1976 THOUSAND WON, 1962-76

| Year | Total Liabilities | Assets | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Total | Fixed[1] / Assets | Liquid[2] / Assets | Cash-Quasi-Cash[3] / | | | |
| | | | | | Total | Cash | Deposit | Other |
| | 1,000 1976 won | | | | % | | | |
| 1962 | 33 | 1,759 | 1,503 | 230 | 26 | – | – | – |
| 1963 | 38 | 2,159 | 1,870 | 260 | 29 | 36 | 5 | 59 |
| 1964 | 32 | 1,653 | 1,377 | 248 | 29 | 30 | 5 | 65 |
| 1965 | 41 | 1,788 | 1,530 | 219 | 38 | 30 | 2 | 68 |
| 1966 | 35 | 1,845 | 1,564 | 239 | 42 | 32 | 4 | 64 |
| 1967 | 38 | 1,968 | 1,654 | 259 | 55 | 34 | 4 | 62 |
| 1968 | 43 | 2,074 | 1,690 | 307 | 77 | 27 | 13 | 60 |
| 1969 | 36 | 2,215 | 1,782 | 335 | 97 | 26 | 14 | 60 |
| 1970 | 42 | 2,421 | 1,966 | 347 | 108 | 35 | 13 | 52 |
| 1971 | 25 | 2,684 | 2,093 | 478 | 113 | 45 | 10 | 45 |
| 1972 | 30 | 3,258 | 2,580 | 559 | 119 | 42 | 17 | 41 |
| 1973 | 28 | 4,298 | 3,567 | 606 | 126 | 44 | 16 | 40 |
| 1974 | 37 | 4,538 | 3,851 | 544 | 144 | 51 | 15 | 34 |
| 1975 | 37 | 5,110 | 4,413 | 523 | 174 | 38 | 22 | 40 |
| 1976 | 37 | 6,299 | 5,489 | 623 | 189 | 35 | 19 | 46 |

1 Includes land, building, trees, large animals and large agricultural implement.
2 Includes small animals, agricultural products inventory and producer's material inventory.
3 Includes cash, deposits, lent money, and others

*Source* Ministry of Agriculture and Fisheries (MAF), Republic of Korea, *Report on the Results of Farm Household Economy Survey* (Seoul, Korea: MAF, various issues 1965-1977)

on a representative national random sample of farm households.[3] From 1962 to 1972 approximately 1,200 farm households were included in the surveys. After 1973 the survey was increased to approximately 2,400 farm households.

Annual summaries and tabulations of this data and various ratios of important variables are published by the Ministry of Agriculture and Fisheries in the *Reports on the Results of Farm Household Economy Survey*. Some of this data is also published by the Economic Planning Board in the *Korean Statistical Yearbook*. Unfortunately, the original raw data for 1962-1967 except 1965 were destroyed several years ago. About half of the data for 1965 were processed ealier by the University of California at Berkeley and Stanford University. As a joint project by the Korea Rural Economics Institute, Chung-Ang University, and The Ohio State University, the data for the years 1968 to 1970 were processed into a uniform format and put onto magnetic tapes. Several consistency checks on the data suggest that the household economy survey data are reasonably reliable and complete.

## IV. Cross-Section Analysis

Savings-consumption propensities derived from cross-section estimations are presented in this section for the years 1965 and 1968-1970. Definitions of the most important variables used in the analysis follow:[4]

*Household income* (Y) is defined as the net disposable household income. This includes net farm income, net income derived from side business activities, non-business receipts such as salary, wages, rents and gifts received during the calendar year. Various taxes and interest paid on borrowed funds are subtracted from gross income figures. The value of farm products includes household consumption as well as sales. The adjustments for change in agricultural input inventory, capital depreciation, and depreciation in inventory used in side businesses are included in the calculation, but the imputed value for family labor is not subtracted from the net income figure. Side business income mainly comes from sideline activities or labor income outside the farm.

3 The survey design employed is one of a three stage stratified sampling method. The City, Eup (capital of a country), and Myon (sub district of a country) constitute the primary sampling units. The enumeration district established in the 1960 Population Census form the secondary sampling units, while farm households are the tertiary sampling units.

4 For additional details on the data and definitions, see any recent issue of Ministry of Agriculture and Fisheries, Republic of Korea, *Report on the Results of Farm Household Economic Survey*, Seoul, Korea: Ministry of Agriculture and Fisheries, various years.

*Household consumption* (C) is defined as all cash and non-cash outlays that occurred during the year for living expenses. It includes purchases of foods, clothing, consumer durables, utilities, expenses, incurred for education, medical care, recreation, and other living expenses. Consumption expenditures also include value of produce raised on the farm and directly consumed by the family. Since education expenses and consumer durable purchases contain savings components, their inclusion as items of consumption expenditures result in some underestimation of household savings.

*Household savings* (S) is defined as the residual of income minus consumption. By defining savings as income minus consumption, savings analysis is equivalent to consumption analysis. An alternative measure of savings, changes in household networth during the year, was not used in this analysis. This measure can yield negative savings for households in certain years which cannot be used in logarithm functions.

*Household family members* (N) are defined as the total number of people residing in the household who are dependent upon the household for a living. No adjustments are made for age or sex composition of the family.

## V. Aggregated Consumption Function Analysis

To estimate marginal propensities to consume (MPCs), consumption functions are applied to the cross-section data for 1965 and 1968-1970. The short-run, cross-section MPCs are estimated along with average propensities to consume (APCs). The basic model to estimate MPCs is a simple Keynesian consumption function specified in two different forms.[5] In these functions, consumption (C) serves as the dependent variable while income (Y) is the independent variable. In order to eliminiate the effects of family size, both variables are expressed in per capita figures by dividing through by the number of people living in the household (N). The two functional forms used are the linear and log-linear:[6]

$$(1) \quad (C/N)_i = b_0 + b_1 (Y/N)_i + U_i,$$

$$(2) \quad \log (C/N)_i = b_0 + b_1 \log (Y/N)_i + U_i, \text{ where}$$

5 The methodology used here is the same as utilized by Ong in her study of Taiwan data.

6 Quadratic and semi-loglinear forms were also used. Since the linear and log-linear forms generally gave the highest F-ratio and smallest standard errors, only the results of these two functional forms are reported here.

(C/N) stands for current per capita consumption expenditures for a calendar year. (Y/N) is per capita income from both farm and off-farm sources for a calendar year. U represents the random disturbance term and i indicates the individual unit among the total observations. The parameters $(b_0, b_1)$ are estimated by using ordinary least square method. The estimates of the aggregated consumption function were made over the total national sample of households without subgrouping.

The results of the statistical estimates of the two functional forms are presented in Table 4. The regression coefficient representing marginal propensities to consume are all significant at the 5 percent level for both functional forms in each year. As can be noted, the $R^2$ values ranged from .319 to .681 in the estimated consumption functions. As far as the goodness of fit of different functional forms is concerned, neither functional form gave a consistent best fit through sample years. We use the linear functional form later to analyze subgrouped data because of its simplicity.

Both APCs and MPCs were calculated from the estimates included in the aggregate regression equations (Table 4). The definition of savings used allowed a derivation of both the average propensity to save (APS) and marginal propensity to save (MPS) as one minus APC and MPC, respectively. As can be noted in Table 4, at the margin, households saved almost half of their incomes. On the average, the savings amounted to nearly one-fifth of household income except for 1965 when farm incomes were depressed due to bad weather and pricing policies.

A number of policy makers have felt that households with relatively low income will not, or cannot save. As can be noted in Table 5, this appears not to hold for Korean rural households. In relative terms rural household incomes in Korea were much lower than rural household incomes in Japan and Taiwan from 1965 to 1975. Yet, aside from the earliest period, the average household propensities to save in Korea were equal to or exceeded those in Japan and Taiwan. Clearly, things in addition to absolute income levels substantially affect savings behavior.

## VI. Subaggregated Consumption Function Analysis

In order to explore the importance of other factors in explaining savings behavior, further analysis was done on various subgroups of Korean households. Households were grouped by farm size, farming region, family dependency ratio, and the ratio of farm income to

## Table 4

## LINEAR AND LOG-LINEAR AGGREGATED CONSUMPTION FUNCTIONS FOR ALL SAMPLE RURAL HOUSEHOLDS IN KOREA, 1958-70

a) Primary Statistics

| Year | No. of Households | Average[1] / per Capita Consumption (C/N) | Average[1] / per Capita Income (Y/N) | APC | APS |
|---|---|---|---|---|---|
| 1965 | 502 | 15,814 | 17,255 | .92 | .08 |
| 1968 | 768 | 26,289 | 31,464 | .84 | .16 |
| 1969 | 860 | 32,673 | 40,247 | .81 | .19 |
| 1970 | 1001 | 39,430 | 48,385 | .82 | .18 |

b) Estimated Consumption Functions

| Year | Functional Forms | $b_o$[2] / | $b_1$[3] / (MPC) | S.E. | $R^2$ | F | MPS |
|---|---|---|---|---|---|---|---|
| 1965 | Linear | 62.12 | .556 (.024) | 48.85 | .527 | 556.85 | .44 |
| | D. Log | 2.43 | .505 (.053) | .41 | .319 | 233.99 | .55 |
| 1968 | Linear | 105.89 | .500 (.046) | 133.33 | .414 | 541.94 | .50 |
| | D. Log | 2.03 | .609 (.024) | .37 | .457 | 645.48 | .49 |
| | Linear | 30.92 | .735 (.017) | 148.36 | .681 | 1830.56 | .27 |
| | D. Log | 1.58 | .696 (.018) | .32 | .624 | 1424.05 | .44 |
| 1970 | Linear | 139.99 | .526 (.018) | 185.62 | .455 | 835.02 | .47 |
| | D. Log | 2.13 | .616 (.019) | .35 | .504 | 1014.30 | .50 |

1/ Figures are in current won.
2/ The values of the intercept, coefficients in the linear function are in current won.
3/ The figures in the parentheses are the standard errors of the regression coefficients.

household income.[7] Linear consumption functions were again fitted to these grouped households so that both APC and MPC could be compared. Although several functional forms were tested, we present in the following discussion only the results of the linear consumption function estimates (Table 6).

*Farm Size Analysis:* The first grouping was made according to the amount of land in the farm enterprise. This includes cropped paddy and dry land, areas in orchards and lots in nursery and in mulberry trees. Farm sizes were classified as follows: less than one-half cheongbo, 0.5 - 1.0 cheongbo, 1.0 - 2.0 cheongbos, and greater than 2 cheongbos.[8] The national average size of cultivated area per household was .96 hectares in 1976 (slightly less than one cheongbo) compared to .89 hectares in 1962. As might be expected, land ownership plays a very important role in determining a household's wealth position. As a result, farm size might affect household savings decisions through the "wealth effect."

Table 6 shows the estimates of the linear consumption function fitted to the farm size subaggregates for the four years under analysis. As expected, APCs as well as MPCs were generally inversely related to farm size in all years except 1965. The larger the farm size, the greater the savings propensities. Consumption propensities in the smallest size groups were significantly greater than those in the largest group, although the difference fluctuated somewhat through 1968-1970.[9] In part, this may be due to differences in on-farm investment opportunities. Larger farms may have had better investment choices and opportunities.

*Farm Income Ratio Analysis:* Some researchers argue that household savings are related to the sources of income and occupation of the household head.[10] In order to test the impact of the sources of income upon household consumption, we grouped the survey households into four classes depending upon their farm income ratio, defined as the total farm income divided by the total household income: less than 0.5, $0.5-0.7$, $0.7-0.9$, and greater than 0.9.

According to the various reports from the Farm Household Economy Survey, farm income made up an average of 79 percent of

7 Similar methodologies were used by Mizoguchi, Kelly and Williamson, Leff, Joshi, and Ong.

8 One cheongbo equals 0.9917 hectares, or 2.45 acres.

9 The difference of the MPCs between two extreme groups over 1968-1970 was significant at 5 percent level based on the two sample mean "t" test.

10 For example, see Mizoguchi, Kelly and Williamson, and Joshi

Table 5

AVERAGE FARM HOUSEHOLD INCOME AND SAVINGS PROPENSITIES IN JAPAN, KOREA AND TAIWAN, 1965, 1968-70, 1975

| Year | Average Farm Household Disposable Income | | | Average Propensity to Save by Farm Households | | |
|---|---|---|---|---|---|---|
| | Japan | Korea | Taiwan | Japan | Korea | Taiwan |
| | (in 1975 U.S.$)[1] / | | | (Ratio) | | |
| 1965 | 4,609 | 1,048 | 2,141 | .16 | .06 | .23 |
| 1968 | 6,486 | 1,007 | 2,624 | .17 | .11 | .28 |
| 1969 | 7,111 | 1,144 | 2,213 | .16 | .19 | .13 |
| 1970 | 7,732 | 1,241 | 2,384 | .15 | .16 | .20 |
| 1975 | 12,146 | 1,789 | 4,092 | .26 | .28 | .29 |

1/ Average official exchange rate for Japanese Yen, Korean Won, and Taiwanese Dollar to U.S. Dollar was 294, 484 and 38, respectively in 1975.

*Sources*

Bureau of Statistics (BS), Office of the Prime Minister (OPM), Japan, *Japan Statistical Yearbook* (Tokyo, Japan; Japan Statistiacl Association, various issues 1967-1978) and *Statistical Handbook of Japan* (Tokyo, Japan; BS, OPM, various issues 1967-1978).

Ministry of Agriculture and Fisheries (MAF), Republic of Korea, *Report on the Results of Farm Household Economic Survey* (Seoul, Korea; MAF, various issues 1965-1977).

Department of Agriculture and Forestry (DAF), Republic of China, *Report of Farm Record Keeping Families in Taiwan*, (Nantou, Taiwan; DAF, various issues 1966-1977).

the total household income in 1965. This ratio declined slightly to 77, 77 and 76 percents, respectively in 1968, 1969 and 1970. As shown in Table 7, both APC and MPC consistently decreased as the ratio increased, except in the less than 0.5 class. Surprisingly however, the average household income per capita of the lowest ratio class was rather high.

Recent analysis carried out by both Hyun and Ro strongly suggests that income source may be a proxy for income stability. Hyun's analysis showed that rural households saved a much larger proportion of their transitory income. Ro found that off-farm sources of income tended to be much more unstable than on-farm sources among these rural households. He went on to conclude that stability of income flows rather than source may explain savings behavior.

## Table 6

### SUBAGGREGATED CONSUMPTION FUNCTIONS BY FARM SIZE GROUPS, 1965, 1968-70

| Year | Farm Size[1]/ Groups | No. of House-holds | (Y/N) Current Won | APC | $b_0$[2]/ | $b_1$[3]/ (MPC) | S.E. | $R^2$[4]/ |
|---|---|---|---|---|---|---|---|---|
| 1965 | 0-0.5 | 104 | 15,670 | .880 | 57.71 | .512 (.052) | 40.3 | .48 |
| | 0.5-1.0 | 184 | 16,080 | .926 | 61.26 | .545 (.050) | 54.2 | .39 |
| | 1.0-2.0 | 129 | 18,380 | .939 | 69.34 | .563 (.038) | 50.0 | .64 |
| | 2.0+ | 85 | 20,040 | 901 | 76.80 | .518 (.052) | 41.8 | .54 |
| 1968 | 0-0.5 | 181 | 27,490 | .820 | 60.21 | .710 (.046) | 111.9 | .57 |
| | 0.5-1.0 | 289 | 26,860 | .892 | 55.71 | .685 (.054) | 121.6 | .36 |
| | 1.0-2.0 | 231 | 33,970 | .771 | 133.04 | .379 (.032) | 122.9 | .39 |
| | 2.0+ | 67 | 53,430 | .725 | 150.03 | .444 (.073) | 211.3 | .36 |
| 1969 | 0-0.5 | 215 | 32,990 | .928 | -22.68 | .996 (.026) | 118.5 | .87 |
| | 0.5-1.0 | 308 | 34,310 | .838 | 10.87 | .806 (.030) | 104.4 | .71 |
| | 1.0-2.0 | 261 | 45,540 | .774 | 19.76 | .730 (.041) | 166.7 | .55 |
| | 2.0+ | 76 | 66,660 | .684 | 135.97 | .480 (.042) | 171.9 | .63 |
| 1970 | 0-0.5 | 234 | 38,400 | .932 | 133.83 | .584 (.043) | 171.7 | .44 |
| | 0.5-1.0 | 376 | 44,910 | .818 | 140.41 | .505 (.032) | 190.2 | .39 |
| | 1.0-2.0 | 308 | 54,240 | .760 | 127.09 | .525 (.027) | 155.4 | .56 |
| | 2.0+ | 83 | 70,410 | .782 | 206.96 | .488 (.079) | 278.9 | .32 |

1/ Farm size is classified in cheongbos (1 cheongbo = .9917 hectares = 2.45 acres).
2/ The intercept coefficients are in current 100 won.
3/ The figures in the parentheses are the standard errors of the regression coefficients. All of the slope coefficients are siginficant at the 5 percent level.
4/ The value of F-ratio varies from 57 to 1477.

## Table 7

## CONSUMPTION FUNCTIONS BY INCOME SOURCE RATIO GROUPS, 1965, 1968-70

| Year | Income Source - Ratio Groups | No. of House-holds | (Y/N) Current Won | APC | $b_0$ 2/ | $b_1$ 2/ (MPC) | S.E. | $R^2$ 3/ |
|---|---|---|---|---|---|---|---|---|
| 1965 | 0-0.5 | 57 | 18,160 | .895 | 98.37 | .354 (.088) | 56.4 | .23 |
| | 0.5-0.7 | 106 | 15,970 | .927 | 55.46 | .579 (.076) | 60.6 | .36 |
| | 0.7-0.9 | 194 | 16,230 | .943 | 42.88 | .679 (.041) | 39.8 | .58 |
| | 0.9+ | 145 | 19,210 | .888 | 68.11 | .554 (.031) | 45.7 | .68 |
| 1968 | 0-0.5 | 87 | 33,260 | .842 | 222.54 | .373 (.050) | 161.3 | .42 |
| | 0.5-0.7 | 110 | 30,990 | .913 | 40.39 | .783 (.039) | 92.6 | .79 |
| | 0.7-0.9 | 262 | 30,980 | .888 | 80.99 | .626 (.037) | 111.8 | .52 |
| | 0.9+ | 309 | 31,540 | .763 | 68.55 | .546 (.035) | 130.4 | .44 |
| 1969 | 0-0.5 | 98 | 40,780 | .924 | -52.09 | .983 (.039) | 149.9 | .88 |
| | 0.5-0.7 | 143 | 36,290 | .866 | 52.01 | .722 (.039) | 111.3 | .71 |
| | 0.7-0.9 | 266 | 39,730 | .834 | 58.29 | .687 (.033) | 163.9 | .62 |
| | 0.9+ | 353 | 42,090 | .747 | 53.47 | .620 (.024) | 125.3 | .65 |
| 1970 | 0-0.5 | 129 | 52,640 | .818 | 221.7 | .400 (.046) | 249.1 | .37 |
| | 0.5-0.7 | 145 | 46,990 | .879 | 68.76 | .733 (.048) | 180.4 | [illegible] |
| | 0.7-0.9 | 323 | 47,020 | .871 | 125.61 | .604 (.036) | 179.8 | .46 |
| | 0.9+ | 404 | 38,620 | .747 | 122.50 | .496 (.025) | 153.9 | .48 |

1/ The intercept coefficients are in current 100 won.
2/ The figures in parentheses are the standard errors of the regression coefficients. All of the slope coefficients are significant at the 5 percent level.
3/ The value of F-ratio varied from 12 to 720.

This may help to explain why households in Table 7 with low proportions of income coming from on-farm sources have MPCs which are generally low.

*Dependency Ratio Analysis:* The hypothesis that the age structure of household members is an important determinant of savings decisions was tested by Leff. He found that with more economically active members in the household, savings rates increased. Leff defined the dependency ratio as the sum of the population aged 14 or less, plus those aged 65 or older over the total number of people in the family.

In this study, we use the dependency ratio as defined by Leff, except that we define the older group to start at age 60. Following this scheme, the survey families were grouped into four categories: less than 0.25, between 0.25 and 0.50, between 0.5 and 0.75, and greater than 0.75. The savings pattern, when analyzed by dependency ratio, was quite heterogeneous as indicated in Table 8. The proposition that families with low dependency ratios have generally higher MPS than those families with high dependency ratio did not hold for the years of 1965, 1968 and 1969. For these three years, the MPSs of the high dependency ratio groups were higher than those of the low ratio groups. A possible explanation for this might be that the high ratio groups may be forced to save more to take care of medical care for the aged and future educational expenses for their children.[11] Another reason for the heterogeneous savings behavior among the four different ratio classes might be explained by differences in income levels. The group with the lowest ratio usually had the highest income levels.

*Regional Analysis:* Agro-climatic conditions in The Republic of Korea are relatively homogeneous compared to other countries with immense size, such as Brazil or India. As suggested earlier, the variance in size of Korean farms is also small. Most farm practices are labor intensive and emphasize bio-chemical technologies to increase agricultural productivity.

Despite this relative homogeneity, farms in South Korea were classified into several agro-climatic regions according to cropping patterns and altitudes. Cropping systems in Korea can be grouped into upland and paddy cropping. Further, climatic conditions along the Korean peninsula allow some double cropping of rice in certain years. Traditionally, there are three basic cropping system: 1) the upland cropping system, 2) the single cropping paddy system, and

11 Ong found similar results in her study of Taiwans rural savings.

## Table 8

### CONSUMPTION FUNCTIONS BY DEPENDENCY RATIO GROUPS, 1965, 1968-70

| Year | Dependency Ratio Groups | No. of House-holds | Y/N Current Won | APC | $b_0$ 1/ | $b_1$ 2/ (MPC) | S.E. | $R^2$ 3/ |
|---|---|---|---|---|---|---|---|---|
| 1965 | 0-0.25 | 70 | 22,340 | .911 | 62.15 | .631 (.071) | 62.76 | .53 |
| | 0.25-0.50 | 229 | 17,160 | .923 | 71.16 | .508 (.040) | 46.01 | .41 |
| | 0.50-0.75 | 195 | 15,550 | .911 | 61.55 | .515 (.032) | 43.78 | .58 |
| | 0.75+ | 8 | 17,210 | .922 | 79.66 | .459 (.478)* | 59.10 | .14 |
| 1968 | 0-0.25 | 106 | 41,340 | .946 | 26.09 | .883 (.061) | 157.81 | .67 |
| | 0.25-0.50 | 314 | 33,790 | .828 | 111.10 | .499 (.033) | 128.78 | .42 |
| | 0.50-0.75 | 313 | 25,340 | .789 | 122.12 | .308 (.027) | 64.29 | .30 |
| | 0.75+ | 35 | 35,420 | .805 | 225.60 | .168 (.068) | 205.51 | .15 |
| 1969 | 0-0.25 | 115 | 61,770 | .835 | -333.30 | .951 (.048) | 217.23 | .81 |
| | 0.25-0.50 | 356 | 41,470 | .813 | 102.68 | .566 (.025) | 136.96 | .59 |
| | 0.50-0.75 | 359 | 32,140 | .790 | 89.26 | .513 (.022) | 83.01 | .60 |
| | 0.75+ | 30 | 40,310 | .860 | -15.39 | .898 (.085) | 148.77 | .80 |
| 1970 | 0-0.25 | 154 | 69,650 | .798 | 199.36 | .512 (.043) | 229.07 | .48 |
| | 0.25-0.50 | 399 | 50,630 | .804 | 187.53 | .433 (.030) | 200.8 | .34 |
| | 0.50-0.75 | 403 | 37,630 | .824 | 105.86 | .542 (.032) | 125.5 | .42 |
| | 0.75+ | 45 | 52,010 | .925 | 75.77 | .779 (.113) | 243.25 | .53 |

* Not significant at the 5 percent level. The rest of the slope coefficients are significant at the 5 percent level.

1/ The intercept coefficients are in current 100 won.

2/ The figures in the parentheses are the standard error of the regression coefficients.

3/ The value of F-ratio varies from 6 to 526, except for the group with the dependency ratio greater than .75 in 1965 (F-ratio is .9).

## Table 9

CONSUMPTION FUNCTIONS BY REGIONAL GROUPS, 1965, 1968-70

| Year | Regional Groups | No. of House-holds | (Y/N) Current Won | APC | $b_0$[1]/ | $b_1$[2]/ (MPC) | S.E. | $R^2$[3]/ |
|---|---|---|---|---|---|---|---|---|
| 1965 | North-West | 81 | 16,610 | .943 | 77.12 | .479 (.076) | 53.86 | .33 |
| | North-East | 91 | 17,490 | .892 | 44.68 | .637 (.052) | 39.86 | .63 |
| | South-West | 128 | 16,900 | .926 | 70.33 | .510 (.057) | 49.42 | .39 |
| | South-East | 202 | 17,630 | .912 | 60.58 | .568 (.032) | 50.23 | .61 |
| 1968 | North-West | 137 | 34,830 | .903 | 71.92 | .697 (.048) | 143.93 | .61 |
| | North-East | 125 | 28,490 | .918 | 20.73 | .845 (.066) | 117.98 | .57 |
| | South-West | 294 | 32,430 | .749 | 139.61 | .318 (.027) | 125.04 | .32 |
| | South-East | 212 | 29,690 | .869 | 52.51 | .694 (.048) | 117.37 | .49 |
| 1969 | North-West | 155 | 41,670 | .800 | 19.89 | .751 (.053) | 166.86 | .56 |
| | North-East | 133 | 44,230 | .808 | 96.39 | .589 (.035) | 131.41 | .68 |
| | South-West | 275 | 28,870 | .807 | 67.49 | .633 (.024) | 142.83 | .62 |
| | South-East | 297 | 38,990 | .825 | -24.30 | .888 (.026) | 137.83 | .79 |
| 1970 | North-West | 198 | 55,790 | .748 | 132.12 | .511 (.034) | 195.97 | .53 |
| | North-East | 164 | 55,300 | .805 | 144.30 | .544 (.045) | 208.79 | .47 |
| | South-West | 327 | 41,830 | .841 | 145.16 | .494 (.038) | 163.33 | .34 |
| | South-East | 312 | 46,920 | .847 | 140.04 | .549 (.035) | 183.49 | .44 |

1/ The intercept coefficients are in current 100 won.
2/ The figures in the parentheses are the standard errors of the regression coefficients. All of the slope coefficients are significant at the 5 percent level.
3/ The value of F-ratio varied from 39 to 1145.

3) the double cropping paddy system. These three systems roughly follow provincial boundaries. For the convenience of data grouping, we classified the whole country into four regions based on administrative boundaries of each province: a) North-West region including Kyunggi and Chungcheong North provinces, b) North-East region containing Kangwon and Chungcheong South provinces, c) South-West region with Chulla South and North provinces, and d) South-East region including Kyungsang South and North provinces. Cheju province was excluded from the analysis because of markedly different agro-climatic conditions.

The savings propensities within these various regions are presented in Table 9. Surprisingly, APCs were almost the same across regions, although they tended to decrease between 1965 and 1970. It is interesting to note that the South-West region, traditionally the major agricultural region in the country, consistently had high marginal savings propensities, although the disposable income per household was relatively low. Overall, data in Table 9 suggest that the rural savings propensities during the sample period were very similar across the different regions.

## VI. Conclusions and Implications

From the various regression equations presented earlier both APS and MPS are summarized in Table 10. One salient feature which stands out in Table 10 is that Korean rural households in general had substantial voluntary savings capacities during the sample period. This finding seriously challenges the common assumption that rural households have very small savings propensities in LDCs. The Korean experience substantiates similar evidence from Japan and Taiwan that under appropriate policies, the rural sector can play an important role in providing voluntary savings for economic development.

Of the various factors used to explain consumption-savings behavior, current income was the most important determinant of savings. Farm size was another important factor which influenced rural savings decisions. In general, large farms showed consistently higher savings propensities than small ones. In part, this may reflect higher incomes associated with larger farm size groups. It also may indicate that larger farmers had more attractive investment alternatives than households in smaller farm size groups.

The results from the income ratio analysis tend to confirm the Taiwan experience reported by Ong et al. as well as Noda's findings

## Table 10

### SUMMARY OF SAVINGS PROPENSITIES AMONG FARM HOUSEHOLD SURVEY FAMILIES BY ECONOMIC SUB-GROUP, 1965, 1968-70

| | APS | | | | MPS*[1]/ | | | |
|---|---|---|---|---|---|---|---|---|
| | 1965 | 1968 | 1969 | 1970 | 1965 | 1968 | 1969 | 1970 |
| Entire Sample | .08 | .16 | .19 | .18 | .44 | .50 | .27 | .47 |
| By Farm Size | | | | | | | | |
| 0-0.5 | .12 | .18 | .07 | .07 | .49 | .29 | .04 | .41 |
| 0.5-1.0 | .07 | .11 | .16 | .12 | .45 | .31 | .19 | .49 |
| 1.0-2.0 | .06 | .23 | .23 | .24 | .44 | .62 | .27 | .47 |
| 2.0+ | .10 | .27 | .32 | .22 | .48 | .55 | .52 | .51 |
| By Income Source | | | | | | | | |
| 0-0.5 | .10 | .16 | .08 | .18 | .65 | .42 | .02 | .60 |
| 0.5-0.7 | .07 | .09 | .13 | .12 | .42 | .22 | .28 | .27 |
| 0.7-0.9 | .06 | .11 | .17 | .13 | .32 | .37 | .31 | .40 |
| 9.0+ | .11 | .24 | .25 | .25 | .45 | .45 | .38 | .50 |
| By Dependency Ratio | | | | | | | | |
| 0-0.25 | .09 | .05 | .16 | .20 | .37 | .12 | .05 | .49 |
| 0.25-0.50 | .08 | .17 | .19 | .20 | .49 | .50 | .45 | .47 |
| 0.50-0.75 | .09 | .21 | .21 | .18 | .48 | .69 | .48 | .46 |
| 0.75+ | .08 | .19 | .14 | .08 | .54 | ** | .10 | .22 |
| By Region | | | | | | | | |
| North-West | .06 | .10 | .20 | .25 | .52 | .30 | .25 | .49 |
| North-East | .11 | .08 | .19 | .19 | .36 | .15 | .41 | .46 |
| South-West | .07 | .25 | .19 | .16 | .49 | .62 | .37 | .50 |
| South-East | .08 | .13 | .17 | .15 | .53 | .31 | .11 | .45 |

1/ Derived from linear estimates.
** Not significant at the 5 percent level.

in Japan. That is, households which are close to full-time farming units tend to have larger savings propensities than to those households that derive a substantial part of their income from off-farm activities.

The dependency ratio also was found to affect savings. Surprisingly, the families with high dependency ratios tended to have higher propensities than the families with low dependency ratios. This rather unusual result might be explained by the fact that the families with high dependency ratios are more strongly motivated to save than low ratio classes in order to meet future educational expenses for their children and unexpected medical expenses for the aged.

Looking at the regional pattern of the savings propensities, the South-West region, a major double cropping area in Korea, showed higher MPS than the rest of Korea in spite of its low ranking in the regional distribution of average disposable income per household. Despite this, savings behavior was relatively homogeneous across the different regions. This suggests that policies designed to promote voluntary savings in rural households should be applied throughout the country.

A significant part of the rural savings capacities found in our analysis has been expressed in the form of financial savings deposits or other securities. The recent expansion of non-bank financial intermediaries such as mutual credit funds and credit unions in rural communities appears to have been a very important factor in helping to induce these financial savings.

The impressive voluntary rural savings performance in Korea over the past few years is very suggestive that rural savings capacities in other low income countries may be more interesting than heretofore thought. It is clear from the analysis reported above that steadily increasing rural incomes have played a major role in the expanded savings capacities. It also appears, however, that incentives to save and opportunities to save in financial forms have also played in important role in facilitating rural savings in rural areas. Policy makers in other countries might be able to encourage much more voluntary private savings by doing likewise. High returns to on-farm investment, attractive rates of interest on financial deposits, and easy access to financial savings facilities appear to be important ingredients in rural savings mobilization.

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